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Journal of the Society of Arts.

FRIDAY, JUNE 3, 1859.

EXHIBITION OF 1861.

The following Resolutions have been passed by the Council of the Society of Arts:—

Resolved,—That with reference to the present and prospective condition of the Continent, the Council is of opinion that the International Exhibition proposed to be held in 1861 should be postponed to a more favourable opportunity.

That this resolution be communicated to His Royal Highness the President of the Society, and to Her Majesty's Commissioners for the Great Exhibition of 1851.

That the Chairman be requested to prepare a report of the proceedings which have been taken by the Council to ensure the success of the intended International Exhibition of 1861, together with an explanation of the grounds on which the Council has come to the conclusion that the Exhibition should be postponed to a more favourable opportunity.

That the Chairman's statement form part of the Annual Report to be laid before the Annual General Meeting on the 29th June next.

That the foregoing Resolutions be communicated to the Guarantors.

The following letter has been addressed to the Guarantors:—

Society of Arts, Manufactures, and Commerce, Adelphi,
London, W.C., 31st May, 1859.

Sir,—I am directed to forward to you, as one of the Guarantors, a copy of the resolutions (see above) which have been passed by the Council in reference to the proposed Exhibition of 1861, and to inform you that the sums already given in to the Council, as intended to be guaranteed, have been such as to leave no doubt of the list being fully completed to the amount required. The Council, however, looking at the state of Italy and the threatening condition of other countries, have determined to postpone action for the present in reference to an International Exhibition. The Council, considering the large amount of support which they have received from intending Exhibitors and others, will again take measures for holding the Exhibition as soon as the state of foreign countries will admit of its being international, and they hope you will allow your name to be retained in the list of those who are willing to give the guarantee when the more favourable opportunity alluded to in the first resolution may have arrived.

I am, &c.,
P. LE NEVE FOSTER, Secretary.

EIGHTH ANNUAL CONFERENCE.

The Institutions in Union are requested to take notice that the Eighth Annual Conference between the Representatives of the Institutions in Union and the Council, will be held on Monday, the 27th instant, at 10 o'clock in the morning. C. Wentworth Dilke, Esq., Chairman of the Council, will preside. Institutions are requested to forward, as soon as possible, to the Secretary of the Society of Arts, the name of the representative appointed to attend the Conference.

The Chairmen of, or Representatives from, the several Local Boards of Examiners, are invited to attend the Conference.

ANNUAL DINNER.

The One hundred and fifth Anniversary Dinner of the Society will take place at St. James's Hall, Piccadilly, on Monday the 27th instant, at half-past five for six o'clock punctually. Members and their friends are requested to take notice that tickets (price 10s. 6d. each) may be had at the Society's House, on and after Monday, the 13th instant.

EXHIBITION OF INVENTIONS.

The Exhibition will remain open every day until Thursday, the 30th inst., and is free to members and their friends. Members by ticket, or by written order bearing their signature, may admit any number of persons. Members of Institutions in Union with the Society are admitted on showing their cards of membership.

EXAMINATION PRIZE FUND, 1859.

The following are the Donations up to the present date:—

	£	s.
John Ball, Examiner in Book-keeping (2nd donation)	5	5
Harry Chester, Vice-Pres. (2nd donation)	5	0
C. Wentworth Dilke, Vice-Pres., Chairman of Council (4th donation)	10	10
T. Dixon	1	1
Frederick Edwards (annual)	1	1
J. G. Frith, Mem. of Council (2nd donation)	5	5
George Goff	5	0
F. Seymour Haden (annual)	2	2
W. Haldimand	10	10
Edward Highton (annual)	2	2
James Holmes (annual)	1	1
Henry Johnson (2nd donation)	25	0
London Committee of the Oxford Middle Class Examinations	5	5
Charles Ratcliff (annual)	10	10
Dr. Skey	1	1
Rev. Dr. Temple	6	6
A Teacher	5	0
Matthew Uzielli	50	0
Rev. A. Wilson	2	2

EXAMINATIONS, 1859.

The number of papers worked in each subject this year is as follows:—

Arithmetic, 232.
Bookkeeping, by Double Entry, 84.
Algebra, 82.
Geometry and Mensuration, 45.
Trigonometry, 17.
Conic Sections, 4.
Statics, Dynamics, and Hydrostatics, Hydraulics, and Pneumatics, 17.

Practical Mechanics, 7.
Magnetism, Electricity, and Heat, 5.
Chemistry, 28.
Animal Physiology, 2.
Botany, 2.
Political and Social Economy, 14.
Geography, 28.
English History, 38.
English Literature, 30.
Latin and Roman History, 18.
French, 87.
German, 14.
Theory of Music, 12.

The papers are now in the hands of the Examiners, and it is expected that the results of the Examinations will be published in next week's *Journal.*

CONVERSAZIONE.

The second Conversazione of the present session took place on Saturday evening, the 28th of May, at the South Kensington Museum. The entire range of buildings was thrown open, including the Sheepshanks Gallery of Pictures, the Sculpture Gallery, the Architectural Museum, the Animal Produce Collections, the Ornamental Art Collections, the Structure and Building Materials Collections, the Educational Collections, and the Art Training Schools, as well as the new rooms recently constructed for the reception of the Vernon and Turner Collections. The Museum of Patented Inventions was also open to visitors, by permission of the Commissioners of Patents. The programme distributed to the visitors included a ground plan of the building, and also a plan of the estate purchased with the surplus funds of the Great Exhibition of 1851, showing the proposed site for that of 1861. The band of the Coldstream Guards was in attendance, and performed the following selection:—

Overture "Le Cheval de Bronze"...	Auber.
Valse, "Queen of the Harvest" ...	C. Coote, jun.
Glee, "The Winds whistle cold"...	Sir H. R. Bishop.
Selection, "Satanella"	Balfe.
Quadrille from Flotow's Opera, "Martha."	
Quadrille, "Reminiscences of Auber."	
Polka, "The Coldstream Guards" (Cornet Solo, Mr. Buchanan)......	A. F. Godfrey.
Glee, "The Red Cross Knight" (Euphonium Solo, Mr. Phasey ...	Dr. Callcott.
Selection, "Il Trovatore," introducing the celebrated Miserere ...	Verdi.
Valse, "Immortellen"	Gung'l.
Morceau Militaire, "The Retreat"	Gaston de Lille.

"God save the Queen" was played shortly after eleven o'clock.

The company was received on entering by Mr. C. Wentworth Dilke, Chairman, and the members of Council.

Refreshments were served in one of the new rooms prepared for the Turner and Vernon collections of pictures.

The number of members and their friends present amounted to nearly 3,000.

The following letter has been addressed to the Lord President of the Privy Council:—

Society of Arts, Manufactures, and Commerce,
Adelphi, London, W.C., June 2nd, 1859.

My Lord,—The Council of the Society of Arts desire to thank your lordship for the use of the South Kensington Museum, which their members and friends enjoyed, by your kind permission, on Saturday evening last, at the Society's annual reception.

The Society of Arts, as your lordship is aware, from the large range of objects which it embraces, includes members in every class of society, and, on the invitation of the Council, a very large number availed themselves of the privilege conceded by your lordship, and with intelligent interest thronged every part of the extensive Museum, particularly the Art Galleries, which, to their own great intrinsic merits, add the novel attraction of a collection of pictures most successfully lighted for evening exhibition.

The Council are sure that your lordship will share the satisfaction they feel in the warm appreciation expressed for these popular collections of art and science, and the conviction impressed on the minds of all of the great advantages which must result from the freedom of access that, under your lordship's direction, has made them so convenient for all classes.

The Council request me to express their best acknowledgments for the valuable assistance of the officers of the Museum, by whose arrangements the comfort of their visitors was so well considered.

I have the honour to be, my Lord,
Your Lordship's most obedient servant,
P. LE NEVE FOSTER, Secretary.

The most Noble the Marquis of Salisbury, K.G.,
Lord President of the Privy Council, Downing-street, S.W.

THE NORMAL DIAPASON.

The *Moniteur* of the 25th February contained the Report presented to his Excellency, the Minister of State, by the Commission charged with the task of establishing in France a uniform musical diapason.* Decree of the 17th July, 1858.

The following translation is taken from the *Musical World*:—

Paris, the 1st February, 1859.

Monsieur le Ministre,—You charged a Commission to "Investigate the means of establishing in France a uniform musical diapason, to fix on a standard of sonority which might serve as an invariable type, and to point out the measures to be passed in order to secure its adoption and preservation."

Your order was founded on the following considerations:—"The constantly increasing elevation of the diapason is attended with drawbacks, from which musical art, musical composers, artists, and musical instrument makers are all sufferers; and the difference existing between the diapasons of various countries, various musical establishments, and various manufactories, is a constant source of embarrassment for concerted music, and of difficulties in commercial transactions."

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* The Commission consisted of—MM. J. Pelletier, Councillor of State, Secretary General in the Ministry of State, President; F. Halévy, Member of the Institute, Perpetual Secretary of the Academy of Fine Arts, Reporter; Auber, Member of the Institute, and Director of the Imperial Conservatory of Music and Elocution; Berlioz, Member of the Institute; Despretz, Member of the Institute, and Professor of Physics at the Faculty of Science; Camille Doucet, head of the theatrical department in the offices of the Minister of State; Lissajous, Professor of Physics at the Lycée Saint-Louis, and Member of the Council of the Society for the Encouragement of National Industry; General Mellinet, charged with the organisation of the bands of the army; Meyerbeer, Member of the Institute; Ed. Monnais, Imperial Commissary at the lyrical theatres and the Conservatory; Rossini, Member of the Institute; Ambroise Thomas, Member of the Institute.

The Commission has terminated its task. It owes you an account of its operations and of the course it has pursued, and it submits to the approbation of your Excellency the result to which it has come.

I.

It is certain that, in the course of a century, the diapason has been progressively and constantly rising. If the study of Gluck's scores were not sufficient to prove, by the manner in which the vocal parts are arranged, that these master-pieces were written with reference to a diapason much less high than ours,* the testimony of contemporary organs would furnish us with irrefutable proof. The Commission desired, in the first place, to account for this singular fact, and, just as a prudent doctor endeavours to go back to the first sources of a malady before attempting to cure it, resolved to discover, or, at least, examine, the causes which had been able to effect the elevation of the diapason.

We possess the elements necessary for estimating this elevation. The organs, of which we have spoken, mark (*accusent*) the difference of a tone below the existing diapason. But even this moderate diapason was not sufficient for the prudence of the opera at that period. Rousseau, in his Dictionary of Music (under the article *Tone*), says that the *tone* of the Opera at Paris was *lower than the tone of the chapel*. Consequently, the diapason, or, rather, the *tone*† of the Opera was, in Rousseau's time, more than a tone lower than the diapason of the present day.

The singers of the period, however, according to a great many writers, forced their voices. Either from want of study, want of taste, or a desire to please the public, they screeched (*criaient*). Such singers, who could manage to screech so loudly with so low a diapason, had no interest in asking for a higher *tone*, which would have required greater exertions; and generally at no time, in no country, neither to-day nor formerly—in a word, never is it the interest of the singer, let him sing well or ill, to meet with a high diapason, which deteriorates his voice, augments his fatigue, and shortens his theatrical career. Singers, therefore, are out of court, and we cannot attribute the elevation of the diapason to them.

The interest of composers—despite whatever may have been said or thought by persons not possessing a very precise notion of musical matters—is directly contrary to the elevation of the diapason. When it is too high, it embarrasses them. The higher the diapason, the sooner does the singer reach the limits of his voice on the sharp chords; the development of the melodic phrase is, therefore, trammelled rather than seconded. The composer has in his head, his imagination, and, we may say, in his heart, the natural type of the human voice (*des voix*). The phrase he writes is suggested to him by a singer whom he alone hears, and who always sings well. This singer's voice, supple, pure, intelligent, and correct, is fixed in conformity with a moderate and true diapason which dwells within the ear of the composer. The composer has, therefore, every advantage to gain by moving in a gamut well suited to the voice, and which, leaving him freer, and more master of the effects he desires to produce, assists his inspiration. Besides, what means does he possess of raising the diapason? Is it he who himself makes, or causes to be manufactured, the perfidious little instruments, the compasses which mislead the mariner? Is it he who comes and gives the A to orchestras? We have never seen or heard that any *maestro*, discontented with the too great reserve of a diapason, had one made to suit his convenience—a personal diapason, in order to raise the *tone* of an entire orchestra. He would meet with a thousand cases of resistance, and a thousand impossibilities. No; the composer does not create the diapason; he submits to it. He cannot, therefore, be accused of having excited the ascensional course of tonality.

We must remark that this ascensional course has been general as well as constant; that it has not been limited to France; and that the Alps, the Pyrenees, and the ocean have not proved obstacles to it. People must not, therefore, as we have heard them do, accuse especially France, whom they are very apt to charge with the misdeeds committed from time to time in the world of music. Our country has merely had a share in the grand invasion of the rising diapason, and, if it was an accomplice in the crime, it was also the victim of it. The causes of this invasion, which have acted everywhere with consistency, *ensemble*, perseverance, and, we might say, premeditation, could not be either accidental or peculiar to one country. They must necessarily have been dependent upon a determining principle, and an interested motive. In virtue of a well-known axiom, we must, therefore, seek out those evidently interested in unduly raising the A which our ancestors hoped to bequeath us.

It is those who manufacture tuning-forks, or have them manufactured, who are the authors of the evil and masters of the situation. It is the musical-instrument makers, and we can understand that they have a legitimate and honourable interest in elevating the diapason. The more elevated the *tone*, the more brilliant will be the sound. The maker will not, therefore, always manufacture his instruments in conformity with the diapason; he will sometimes manufacture his diapason in conformity with an instrument he may consider sonorous and striking. The truth is, that he is a passionate admirer of sonority, which is the object of his work, and is incessantly endeavouring to increase the force, purity, and transparency of the voices which he knows how to create. The wood he fashions and the metal he forges, obeying the laws of resonance, will assume intelligent sounds, which a skilful, or, sometimes, an inspired artist, will soon animate with his bow, his breath, and his light, supple, or powerful fingers. The instrumentalist and the maker are, therefore, two allies; their interests are combined and mutually supporting. Once introduced into the orchestra, they sway and rule it, easily dragging it to the heights in which they delight. In fact, the orchestra belongs to them, or, rather, they are the orchestra, and it is the instrumentalist who, by giving the *tone*, regulates, without desiring to do so, the studies, the efforts, and the destiny of the singer.

The great sonority acquired by wind-instruments speedily found its direct application, and received from it a still greater impulse. Music, which adapts itself to everything, and everywhere takes its place, marches at the head of regiments; it sings to the troops the airs which animate them, and remind them of their native land. Under these circumstances, it must sound loud and firm, and its voice must extend a long distance. Military bands, seizing on the diapason and raising it still higher than it was before, propagated throughout

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* The scores of Monsigny and Grétry suggest the same remark.

† The word *diapason* had not then received the signification we lend it now-a days, and the little instrument employed to give the *tone* did not exist. "The instrument which serves to give the *tone* (*ton de l'accord*) to a whole orchestra, and which some persons call a *choriste*, is a whistle, which, by means of a kind of graduated piston, by which the pipe is lengthened or shortened at pleasure, always emits pretty nearly the same sound under the same division, &c." (Rousseau, *Dictionnaire de Musique*, under the head *Tone*.) In Italy, at the present day, the name of *corista* is still given to the tuning-fork. One of the *choristes* mentioned by Rousseau is preserved in the "Cabinet de Physique" at the Sorbonne.

Europe the movement which incessantly hurried it forward.*

At the present day, however, military music might, without fear, descend somewhat from the diapason it has unduly raised. Its pride would not suffer, nor would its flourishes be less martial or less striking. The great number of brass instruments it now possesses have given it more body, and more firmness, as well as an amount of relief, both solid and brilliant, formerly wanting to it. Let us hope, moreover, that further progress on the part of the various makers speedily freeing certain instruments from drawbacks which are to be regretted, will open to them an access of rich tonality at present denied them. The honourable general who represents in the Commission the organisation of the military bands, would exert himself to the utmost to second this desirable amelioration—this real advance—which would endow military bands with fresh resources, and vary the brilliancy of their sonority.

We think, Monsieur le Ministre, we have proved that the elevation of the diapason is due to the efforts of instrument-makers and instrumental performers, and that neither composers nor singers have had any participation in it. Religious music and dramatic music have submitted to the movement, without being able to avoid it, or without endeavouring to escape doing so. The diapason might, therefore, be lowered to a certain extent, with the certainty of serving the true and greatest interests of art.

II.

We felt assured that the fact "of the constantly increasing elevation of the diapason" had not taken place in France alone, but that the whole world of music had been similarly hurried along; it was necessary, however, to obtain authentic proofs of this; is was necessary, also, to know to what extent, and in what different degrees, this influence had been felt in various countries, and in the principal centres of human activity.

We thought, therefore, M. le Ministre, that, in order to bring to a successful issue the researches with which your Excellency had charged us, it was requisite for us to begin by obtaining information abroad and at home, by questioning the heads of important establishments in France and foreign countries, by finding what was the general state of the diapason, and, in a word, by holding a sort of judicial inquiry (*enquête*). This course was, moreover, marked out by the very decree constituting us a Commission, and in which, with great justice, you mention "the difference existing between the diapasons of various countries, as a constant source of embarrassment."

Under your auspices, and through the medium of our president, we applied, therefore, to every place where there is an opera, or a grand musical establishment; to those towns where art is cultivated with love and success, and carried out with *éclat*, and which may be termed the capitals of music; we asked for information concerning the course followed by *tone*, and begged that the tuning forks in use at the present day might be sent us, as well as the old ones, if possible, so that we might measure exactly the discrepancy. At the same time, we requested those enlightened men to whom we applied, to acquaint us with their opinion of the actual state of the diapason, and their feelings, whether favourable or opposed, with regard to a lowering, or moderating of the *tone*. Music is a collective art; a sort of universal language. Every nationality disappears before musical writing, since a single system of notation is sufficient for all nations; since signs everywhere the same represent the sounds which form melody, or are grouped in chords; the rhythms which measure the time, and the various shades which colour the thought; even silence is written by this provident alphabet. Is it not desirable that a uniform diapason, henceforth invariable, should add a final link to this community of intelligence, and that an A always the same, counting all over the globe the same vibrations, should facilitate musical relations, and render them still more harmonious than at present?

It was with this view of the subject that we wrote to Germany, England, Belgium, Holland, Italy, and even America, and our correspondents have forwarded us conscientious answers, useful information, and interesting reminiscences. Some sent us old tuning-forks, half a century old, and now out of date; and others, contemporary ones, of various intonations. All of them, acknowledging and censuring the actual exaggeration, assured us of their cordial adhesion. Three of them, compatriots of ours,* while participating in the general opinion, ask, it is true, that the diapason shall be fixed by the actual state of the diapason of Paris; they do so, however, in order to stop it in its progressive ascent, and oppose an obstacle to future encroachments; but this, in our opinion, is an impotent obstacle, which protects the evil, and opposes it to itself, consecrating instead of destroying it. The rest are unanimous in desiring a less elevated diapason, uniform, and unalterable, a really international diapason, round which would rally, with unvarying agreement, the singers, instrumentalists, and instrument makers of all countries. Most of our foreign correspondents, besides expressing their approbation, praise us for having taken the initiative: "I am bound to thank you," writes one gentleman,† "for the important cause you have undertaken to plead; it is high time to stop the irregularities by which we have allowed ourselves to be carried away." "I adopt the sum total of your wise reflections," says another most distinguished conductor,‡ "and hope all Europe will warmly applaud the nomination, by his Excellency the Minister of State, of a commission to establish a uniform diapason. The great elevation of the diapason destroys and effaces the effect and character of ancient music—of the masterpieces of Mozart, Gluck, and Beethoven."—"I make no doubt," writes another gentleman,|| "that the commission will succeed in this important question. This will be another act of service rendered by your nation to art and commerce."—"The progressive elevation of the diapason," writes another of our honourable correspondents,§ "is not prejudicial to the human voice only, but likewise to all instruments. Stringed instruments especially have lost a great deal, as far as sound is concerned, since it has been indispensable, on account of this elevation, to employ very thin strings, strong ones not being able to stand the exaggerated tension; hence arises that sound which, instead of coming nearer and nearer, becomes more and more dissimilar to the human voice."—"To fix the diapason once for all," says a fifth,¶ "would be to put an end to a great many doubts, as well as a multitude of annoyances, and even caprices. I as-

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* We read in a letter addressed to us by M. Kittl, director of the Conservatory at Prague: "It is greatly to be desired that some conclusion should be arrived at in this matter, for there are continual complaints about the progressive elevation of the diapason, and all Europe will feel grateful that France has resolved to bestir herself, for she will not fail of success. In Austria, the military bands are the cause of this elevation, their diapason varying a semitone from that of other musical bodies. This difference dates from the time of the Emperor Alexander I. On becoming the proprietor of an Austrian regiment, he ordered new instruments to be made for the band. The maker, in order to bring out the latter with greater prominence, raised the diapason of the instruments, which, of course, imparted more freshness and brilliancy to the sound. The innovation excited the envy of the other military bands, who all raised their diapason."

* MM. Daussoigne-Méhul, Georges Hainl, and Auguste Morel.

† Herr Franz Erkel, Capellmeister at the National Theatre, Pesth.

‡ Herr Reissiger, first Hof-Capellmeister at Dresden.

|| Herr Joseph Abenheim, director of the chapel of his Majesty the King of Wirtemberg.

§ M. de Lwoff. Master of the Court, and Director of the Imperial Chapel at St. Petersburgh.

¶ Herr Ferdinand David, Director of the Leipsic Conservatory.

sure you we take a lively interest throughout musical Germany in the execution of your project."—"You have said truly," writes another,[*] "that all Europe is interested in the researches undertaken for the purpose of establishing a uniform diapason. The musical world has long felt the urgent necessity of a reform, and thanks France for having taken the initiative."—M. Drouett, Capellmeister of the Grand Duke of Saxe-Cobourg-Gotha, has forwarded us three tuning-forks, of different periods and elevations, together with an interesting note. Lastly, we have received from two highly competent gentlemen, Herr Wieprecht, director of the military music of Prussia, in Berlin, and Dr. Furké, papers treating the subject in a most masterly manner. The authors entirely coincide with the idea which led to the appointment of the Commission.

These numerous instances of adhesion, emanating from such high authorities, make us feel certain that a proposition for lowering the diapason will be well received throughout Germany. We must, also, here mention that, as far back as 1834, a number of German musicians assembled at Stuttgart, and expressed a wish that the diapason should be lowered, recommending the adoption of an A considerably below our A at present in use.[†] There will certainly be, at first, some difficulties, arising more especially from the division of Germany into so large a number of different states. This is an opinion which one gentleman has expressed to us,[‡] but there is reason to believe that, after a few oscillations, an invariable and common type will be established in the above country, which is of great weight in the destinies of musical art.

From Italy we have as yet received only one letter. It is from M. Coccia, director of the Philharmonic Society at Turin, and *maestro di capella* of the Cathedral of Novara. M. Coccia has been kind enough to forward us the tuning-fork used at Turin;[‖] it is a little lower than that of Paris, and the mildest (*il più mite*), says M. Coccia, with which he has hitherto met. He recommends its adoption. Thus M. Coccia, also, is in favour of a *softening* of the tone, and this augurs well for the opinion of Italy, on which great stress should be laid.

From London, we have received a communication from Messrs. Broadwood, the celebrated pianoforte makers. They have been kind enough to forward us three tuning-forks, all employed in their establishment, each one being used for an especial purpose.[¶] The first, which is a quarter of a tone lower than that of Paris was, twenty-five or thirty years ago, that of the Philharmonic Society, of London. It has been judiciously preserved by Messrs. Broadwood, as one of the best suited to the voice, and it is by the extremely moderate *tone* it emits that they tune the pianos intended for accompaniments at vocal concerts. The second, much higher, since it is more elevated than our own, is that by which Messrs. Broadwood generally tune their pianos, because it is nearly conformable to that of harmoniums, flutes, &c.; it is the diapason of instrumentalists. Lastly, the third, still higher, is that now used by the Philharmonic Society. This extreme licence in the diapason[*] must be attended with inconvenience, and is calculated to endanger, in some measure, absolute correctness. The result is, that Messrs. Broadwood express a wish "for the success of our researches, so interesting and so important for the whole musical world."

M. Bender, musical director of the King of the Belgians and of the regiment of the Guides, would like two diapasons, with the difference of half a semi-tone; the higher one for military bands, and the other intended for theatres. M. Bender practises his system; the diapason employed by the bands of the Guides is not applicable to vocal music. It is the highest of all the diapasons we have received.

M. Dussoigne-Méhul, director of the Royal Conservatory at Liege, does not send us any tuning-fork, that which he employs being similar to that of Paris. He is one of the three correspondents who are in favour of the adoption of this diapason, as the extreme limit, and safeguard, if only, he says, to arrest its tendency to ascend.

M. Lubeck, director of the Royal Conservatory at the Hague, sends us his tuning-fork, which is somewhat less high than our own, and at the same time promises us his adhesion and support.[†] You see, Monsieur le Ministre, with how much sympathy and approbation your desire to establish a uniform diapason meets.

We have written to America. New York has not yet answered. M. E. Prévost, conductor of the French Opera at New Orleans, has forwarded us a letter of adhesion, and a tuning-fork which has not reached us.

We have also received information on the subject from distinguished artists in some of the great cities of France, where music is held in honour.

The tuning-fork sent us by M. Victor Magnien, director of the Imperial Academy of Music at Lille,[‡] is, after that of M. Bendor and those from London, the highest of any forwarded to us. It is, consequently, higher than that of Paris. It has, no doubt, like a good neighbour, experienced the influence of the band of the Guides at Brussels, and M. Magnien eagerly joins those who ask for a moderate diapason.

M. Mézerai, conductor of the orchestra at the Grand Theatre, Bordeaux, has communicated his diapason, which is less elevated than that of Paris. He first adopted the latter, but, he informs us, it fatigued his singers too much.

The diapason of Lyons is the same as that of Paris; that of Marseilles is a very little lower. M. Georges Hainl, conductor of the orchestra at Lyons, thinks the diapason of Paris ought to be retained, in spite of its high pitch, lest the *éclat* of the orchestra might be injured. M. Aug. Morel, director of the Communion School of Marseilles,[‖] inclines to this opinion. These two artists, with M. Méhul, constitute the group we have mentioned as proposing that the actual state of things should be adopted as the definitive limit.

Toulouse has forwarded us two tuning-forks, that of the theatre, less elevated than our own, and almost similar to that of Bordeaux, and that of the School of Music,[¶] which is about the fourth of a tone lower. This is a remarkable difference, and all the more important, as Toulouse is one of those towns distinguished for musical instinct, where singing is popular, and harmony abundant, and which, in all times, has supplied our stage with artists possessing melodious and sonorous voices.

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[*] Herr Franz Abt, Capellmeister of the Ducal Theatre, Brunswick.

[†] The A proposed by the meeting at Stuttgart was one of 880 vibrations. The present diapason of Paris is 896, and that of Berlin, one of 903.

[‡] Herr Franz Lachner, the cebrated composer, and director-general of music at the Bavarian Court, expresses himself in the following terms: "I warmly desire, for the interest of the art, that the Commission may happily surmount the difficulties which will, doubtlessly, arise in the execution of this project. Be assured that, as far as I am concerned, I will do all I can to realise your idea."

[‖] M. Coccia thinks that the Turin tuning-fork he sends us is also that of the theatre at Vienna. He believes it to be lower than that used at Venice and Naples.

[¶] These three forks give the C (*ut*), like that sent from St. Petersburg by M. Lwoff.

[*] There is about a semi-tone difference between Messrs. Broadwoods' diapason No. 1, and their diapason No. 3

[†] "I have had also to contend against the continual rise of the diapason. By founding a stable diapason you will render an important service to the art. I shall, therefore, do all in my power to bring into use among us the diapason you fix upon for France."—*M. Lubeck's Letter.*

[‡] A branch of the Imperial Conservatory of Paris.

[‖] The School of Marseilles, as well as the School of Toulouse, mentioned a few lines lower down, are branches of the Imperial Conservatory of Paris.

[¶] These two tuning-forks were sent us by M. Mériel, director of the School of Toulouse.

The tuning-fork of the School of Toulouse is, like that of the Grand-Ducal Theatre of Carlsruhe, from which it differs by only four vibrations, the lowest of all that have been forwarded us. That of the band of the Guides of Brussels, which emits nine hundred and eleven vibrations a second, is, for sharpness, the extreme limit of these diapasons; that of Carlsruhe, which gives only eight hundred and seventy vibrations, is the limit in lowness.* Within this difference, which is not much less than a semi-tone, range the diapasons in use at the present day, and, consequently, the orchestras, bands, and vocal combinations, of which they constitute the rule and the law, and of which, so to speak, they represent (*résumer*) the expression.

Thus France possesses, at her two extremities, one of the highest diapasons, that of Lille; and one of the lowest, that of the School of Toulouse. We can trace on the map the route followed by the diapason in France; it rises and falls with the latitude. From Paris to Lille it rises; it falls from Paris to Toulouse. We perceive that the North is subject to the contact, the predominance of instrumental, while the South remains faithful to the rules and good traditions of vocal art.

We have presented to you, Monsieur le Ministre, a faithful epitome of the information we have received; we have acquainted you with the impression it has produced upon ourselves. Taking into account the almost unanimous opinions expressed for a moderation of *tone*, and the unanimous opinions in favour of the adoption of a uniform diapason, that is to say, a general levelling of the diapason, freely consented to; taking into account the remarkable differences existing between the various diapasons we have been enabled to compare, differences measured, with all the precision of science, by the number of their vibrations, and duly marked down in one of the tables annexed to this report,† the Commission, after discussing the question, has adopted, unanimously, as principles, the following propositions:—

It is desirable that the diapason should be lowered.

It is desirable that the lowered diapason should be generally adopted as an invariable regulator.

III.

It now remained for us to decide how much the diapason could be lowered, so as to secure for it the best probable chance of being adopted as an invariable regulator.

It was evident that the greatest possible abatement was a semi-tone, a more considerable deviation being neither practicable nor necessary; and on this point the Commission was unanimous. The semi-tone, however, met with opponents, and three systems were started; the diminution of a semi-tone; the diminution of the fourth of a tone, and a diminution of less than the last.

One member only proposed a diminution of less than a quarter of a tone. Fearing especially that the relations of commerce would be disturbed, he proposed a very moderate diminution, which, at the most, and in its greatest amplitude, should extend to half a quarter of a tone.

The question of commercial relations is sufficiently important to warrant us in dwelling on it an instant. Besides, Monsieur le Ministre, when you appointed us you directed our attention to it.

Among the documents forwarded us is a letter signed by our principal and most celebrated instrument-makers in all branches of the profession. In this letter addressed to your Excellency, the writers state all the inconveniences resulting "from the continual rising of the diapason, and of the difference between various diapasons." You are asked to put an end to these inconveniences by establishing a uniform system of diapason. "It belongs to your Excellency," say the writers, "to cause this kind of anarchy to cease, and to render the musical world as important a service as that formerly rendered to the industrial world by a uniform system of measures."

The Commission entertains the highest consideration for the interests of our great trade in the manufacture of instruments, which is one of the sources of riches in France, a branch of industry intelligent in its products and felicitous in its results. The clever men who direct, and have raised it to the first rank, cannot question our solicitude; they know we are friendly towards a trade which supplies some of the members of the Commission with valuable and charming auxiliaries.

But, if among these makers, who have so well pointed out to your Excellency "the inconveniences resulting from the divergence and constantly increasing elevation," there are some who, as we have been informed, now apprehend "the inconveniences" resulting from the measures we desire to adopt for the purpose of contenting them, what is to be done? Since, "with all the musical world," they have asked for a uniform diapason, how can the selection of a diapason, destined as we and they hope, to become uniform, disturb "commercial relations" already disturbed, in their opinion, by the divergence of existing diapasons from each other. The establishment of a uniform diapason necessarily implies the selection of one diapason and no more. Now we have received, listened to, compared, and measured twenty-five different tuning-forks, all in active use at the present day. From so many A's, which is to be chosen? Our own apparently. But why? Of these twenty-five diapasons, not one desires to rise, but many are eager to descend, while fifteen are lower than that of Paris. By what right should we say to these fifteen diapasons—Rise to our level. Would not the very fact of our doing so cause commercial relations to run a great chance of being disturbed? Is it not more logical, more reasonable, and more sensible, for the sake of the grand system of conciliation we wish to try, to descend towards this majority, and have we not, by this plan, the greatest chance of being listened to by the foreign artists whose assistance we have requested, and whom we now thank for having responded to our appeal with so much cordiality and sympathy?

In order to give the instrument-trade a mark of its solicitude, the Commission called together the principal makers, those who obtained the first rewards at the Universal Exposition of 1855, that is to say, the very same who wrote to your Excellency,* and it was only after conferring with them, and several of our orchestral conductors,† that the Commission deliberated on the extent the diapason might be lowered.

In the discussion on this point, the great majority of the suffrages was for the diminution of a quarter of a tone; this would sensibly moderate the trouble attending the studies and exertions of singers, and thus insinuate itself, so to speak, incognito, into the presence of the public, without causing too great a perturbation in established habits; it would facilitate the execution of ancient master pieces, and would bring us back to the diapason employed about thirty years ago, the period of the production of works of which most have remained on the repertory, and which would thus be in the position they occupied when composed and first represented. It would be accepted abroad more readily than the diminution of a semi-tone.* Thus, moreover, it would nearly approach the diapason selected in 1834, at Stuttgart. It already had in its favour actual experience, restricted, it is true, but the results of which we are able to appreciate.†

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* The diapason No. 1. of Messrs. Broadwood (the old diapason of the London Philharmonic) is rather lower than that of Carlsruhe, giving only 868 vibrations. M. Jos. Strauss, ducal Capellemeister, at Carlsruhe, states, while giving us his adhesion, that the diapason he employs is that which fatigues his singers, both male and female, the least, and is best adapted for the execution of operas, ancient as well as modern.

† Table A. Table B shows the progressional elevation of the diapason in different countries. These two tables were drawn up by M.M. Despretz and Lissajous, members of the Commission.

* MM. Triébert, Buffet, and Ad. Sax, makers of wind-instruments; M. Cavaillé-Coll, organ-builder; the representative of M. Erard; MM. Pleyel-Wolff and Henry Herz, piano-forte makers; M. Alexandre, maker of the organ-melodium; and M. Willaume, maker of stringed instruments.

† M. Girard, conductor at the Imperial Academy of Music; and at the Société des Concerts du Conservatoire; M. Mohr, band master of the Imperial Guard; and M. Delaffre, conductor at the Théâtre Lyrique.

The Commission has, therefore, the honour to propose that your Excellency should institute a uniform diapason for all the musical establishments of France, and decide that the tuning fork giving the A should be fixed at 870 vibrations a second.

With regard to the measures to be taken for the adoption and preservation of the new diapason, the Commission is of opinion, Monsieur le Ministre, that it would be advisable:—

1. That a model tuning-fork, giving 870 vibrations a second, at a temperature of 15 degrees centigrade, should be constructed under the direction of competent persons, named by your Excellency.

2. That your Excellency should fix, for Paris and the departments, an epoch after which the new diapason should become obligatory.

3. That the state of the tuning-forks and instruments in all theatres, schools, and other musical establishments, should be submitted to the inspection of proper officers (*à des vérifications administratives*).

We trust, Monsieur le Ministre, that, for the sake of unity of the diapason, and to render these measures as comprehensive as possible, you will kindly exert yourself with his excellency the Minister of War, to procure the adoption of the diapason, thus amended, into the regiments of the army, and with his Excellency the Minister of Commerce, in order that, for the future, musical instruments made in conformity with this diapason may alone be admitted to contend for the prizes offered at the Industrial Expositions. We solicit, also, your Excellency's intervention, so that this diapason may be the only one authorised and employed in all the Communal Schools of France where music is taught.

Lastly, the Commission requests, Monsieur le Ministre, your kind intervention with his Excellency the Minister of Public Instruction and Worship, in order that, for the future, the organs he may order to be built or repaired may be tuned according to the new diapason.

Such, Monsieur le Ministre, are the measures which strike the Commission as necessary, in order to secure and consolidate the success of the change that the adoption of a uniform diapason would introduce in our musical habits (*mœurs musicales*). Order and regularity would be established where chance, caprice, and carelessness now sometimes reign; the study of singing would be pursued under more favourable circumstances; and the human voice, having its ambition less excited, would be subjected to less rough trials. The instrument trade, by aiding in these measures, might, perhaps, be enabled to improve still more its products, already in such request. It is not unworthy the government of a great nation to busy itself with questions of this kind, which may appear futile, but which possess a real importance of their own. Art is not indifferent to the care taken of it. It requires to be loved, in order to fructify and spread, and elevate the hearts and minds of men. Everyone knows with what love, with what ardent and rigorous uneasiness the Greeks, who were animated by so lively and profound a sentiment of art, watched over the preservation of the laws regulating their music. By directing your attention to the dangers to which an excessive love of sonority may expose musical art, and by endeavouring to establish a rule, a measure, a principle, your Excellency has a afforded a fresh proof of the enlightened interest you take in the fine arts generally. The friends of music thank you, Monsieur le Ministre—those who have devoted to it their whole life as well as those who dedicate to it their leisure moments; those who speak the harmonious language of tune, as well as those who merely understand its beauties.

We have the honour respectfully to remain,
Monsieur le Ministre,
Your Excellency's very humble and very devoted Servants,
J. Pelletier, President; F. Halévy, Reporter;
Auber, Berlioz, Despretz, Camille Doucet,
Lissajous, General Mellinet, Meyerbeer,
Ed. Monnais, Rossini, Ambroise Thomas.

The Minister of State has resolved as follows:—

Considering the order, bearing date the 17th July, 1858, and appointing a commission charged to investigate the means of establishing in France a uniform musical diapason, of fixing on a sonorous standard which might serve as an invariable type, and of indicating the measures to be taken for securing its adoption and preservation;

Considering the report drawn up by the Commission, and dated the 1st February, 1859;

It is decreed that:—

Art. 1.—A uniform diapason is fixed for all the musical establishments in France, Imperial and other theatres of Paris and the departments, conservatories, branch schools, and public concerts authorised by the State.

Art. 2.—This diapason giving the A adopted for tuning instruments, is fixed at eight hundred and seventy vibrations a second. It will be known by the name of the *Normal Diapason.*

Art 3.—The standard prototype of the Normal Diapason will be preserved at the Imperial Conservatory of Music and Elocution.

Art. 4.—All music establishments authorised by the State will have to be provided with a tuning-fork, verified and stamped in conformity with the standard prototype.

Art 5.—The Normal Diapason will come into force, in Paris, on the 1st of July next; and, on the 1st of December following, in the departments.

After the above dates only instruments verified and stamped in conformity with the Normal Diapason will be admitted in the musical establishments above mentioned.

Art. 6.—The state of the tuning-forks and instruments will be regularly submitted to the examination of the proper officers (*à des vérifications administratives*).

Art. 7.—The present decree will be lodged with the Secretary-General, to be notified to all whom it may concern. Achille Fould.

Paris, 16th February, 1859.

Tables annexed to the Report.

TABLE A.

Table of the diapasons used in the principal towns of France, and in various countries of Europe, according to the types received by the Ministry of State:

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* Being convinced of the utility of your project, I will do my best to get your diapason accepted here, if, after the researches of your Commission, the change to be made is not too great." Letter from Herr Ferdinand David, Director of the Conservatory, at Leipsic.

† The Grand-Ducal Theatre, at Carlsruhe, and the School of Toulouse, the voices from which are fresh, supple, and in good condition, employ the diapason which we propose. With reference to this school, by the way, we must remark that young pupils from it experience serious difficulty, and sometimes a perceptible deterioration of voice, when they are obliged to exchange their own moderate diapasons to conform to that of Paris.

Origin	Number of vibrations per second.	Variation from the diapason of the Opera at Paris.	
		Measured in vibrations.	Measured in vibrations of mean tone.
	France.		
Lille	904	+8.0	+0.077
Paris	896	...	...
Marseilles	894	— 2.0	—0.019
Bordeaux	886	—10.0	—0.096
Toulouse (Theatre)	885	—11.0	—0.106
Toulouse (Conservatory) ...	874	—22.0	—0.210

FOREIGN COUNTRIES.

Origin	Number of vibrations per second.	Measured in vibrations.	Measured in vibrations of mean tone.
Brussels (Band of the Guides)	911	+15.0	+0.144
London (No. 3)	910.3	+14.4	+0.138
,, (No. 2)	905	+ 9.0	+0.087
Berlin	903.5	+ 7.5	+0.072
St. Petersburg	903	+ 7.0	+0.067
Prague	899.5	+ 3.5	+0.034
Leipsic	897.5	+ 1.5	+0.014
Munich	896.2	+ 0.2	+0.002
The Hague	892.3	— 3.7	—0.035
Pesth	892	— 4.0	—0.038
Turin	889.5	— 6.5	—0.062
Wurtemburg			
Weimar			
Brunswick	887	— 9.0	—0.086
Gotha	886·5	— 9.4	—0.091
Stuttgardt	886	—10.0	—0.096
Dresden	882	—14.0	—0.134
Carlsruhe	870	—26.0	—0.520
London (No. 1)	868	—28.0	—0.269

TABLE B,

Showing the progressive elevation of the diapason in different countries:

Names of the Observers.	A.D.	Number of Observations.	Variation from the actual diapason of each country in fractions of the mean tone.
	Paris (Grand-Opera).		
Sauveur	1699	808	—0.845
do.	1700	808	—0.845
do.	1704	810·6	—0.820
do.	1713	811.7	—0.809
Drouet............	1810	846	—0.480
Fischer	1823	862.7	—1.320
Drouet............	1830	871.5	—0.235
Delazenne ...	1836 to 1839	882	—0.134
Lissajous.........	1858	896	
	Berlin.		
Marburg	1752	843.75	—0.574
Wieprecht ...	1806 to 1814	861	—0.408
Fischer	1823	874.64	—0.277
Wieprecht	1830	880	—0.225
Schribler.......	1834	883.25	—0.194
Wieprecht	1858	903.5	
	Saint Petersburgh.		
Sarti	1796	872	—0.298
Lissajous.........	1858	903	
	Turin.		
Delezenne	1845	880	—0.091
Lissajous.........	1858	889.5	
	Milan.		
Delezenne	1845	893.14	—0.072
Lissajous...... ..	1856	900.6	

ALUMINIUM.

M. Christofle has communicated to the Academy of Sciences at Paris, in the form of a letter to M. Dumas, the result of some experiments made with aluminium bronze. He says:—"We have applied the bronze of aluminium to two uses, for which its qualities of hardness and tenacity seemed specially fitted. The success has been quite equal to our expectations. The first is in the construction of bearing surfaces for rotating axles; the second for slide valves and other bearing surfaces exposed to much friction. Of these applications the following are examples:—The journals for the axle of a polishing wheel, making 2,200 revolutions per minute, were made of aluminium bronze eighteen months ago; they have lasted to the present time. Other bearing surfaces under similar conditions do not last more than three months. Again, the slide bars of a sawing machine, the saw moving with the velocity of 240 revolutions per minute, were made of aluminium bronze. It has been used now one year without any apparent trace of wearing out. Slide bars of ordinary bronze would not, under similar circumstances, have lasted four months. The second application of the aluminium is for the manufacture of ordnance, gun-barrels, howitzers, and firearms. A pistol-barrel having been constructed of it in our manufactory, it was tried in the practice-ground of Renette, and was subsequently forwarded to the exhibition at Dijon. It was subjected there to every kind of test, in the presence of the jury; it bore them to the utmost of our expectations.

"We do not wish it to be imagined that this trial of a pistol-barrel can prove conclusively the value of the metal for ordnance, but the comparative experiments made by us between this metal, bronze, iron, and steel, have demonstrated its immense superiority over the others. So strong is our conviction on this point that we have requested the Academy to support our application to the Minister-at-War to be permitted, at our own expense, to make such a piece of artillery as may be thought most proper for testing the properties of aluminium bronze as a metal for guns. We look for great results in this direction, which we shall feel proud to associate with our name, at the same time rendering thanks to M. Saint Clair Deville, to whom is due the discovery of those alloys for which there appears so brilliant a future.

"The large bar deposited in the office of the Academy is intended to be forged and bored for a minié rifle. The small bar has already been forged, at a cherry heat, when it works like steel of the best quality, whilst it is well known that ordinary bronze is brittle when heated."

M. Christofle's letter was referred to the examination of a committee, composed of Marshal Vaillant and Messrs. Piobert and Morin.

AUSTRALIAN WINES.

The following is extracted from the *Adelaide Observer*:—

The rapid development of the wine growing interest in Australia is indicated by the fact of movements taking place both in this colony and in Victoria for the formation of companies having in view the manufacture and sale of the produce of the vineyard. The East Torrens Wine-making and Distillation Company, as our readers are aware, are preparing on a moderate scale to commence operations this year, a sufficient amount of capital having been raised to warrant the erection of buildings, and to justify the shareholders in the hope that when once the Company have fairly started the public may be induced to give the undertaking more extended support. At present the limited means of the Company is a great disadvantage, the number of £5 shares taken up being only 257 out of the 400 offered for sale. From this it would appear that vine-growers are not yet generally impressed with the desirability of combination, and that they prefer making use of their produce themselves to selling it to a company. Were it not so, it is clear that such persons might have subscribed the capital called for without inconvenience. It is possible that in thus neglecting an opportunity of joint effort they may be ultimately prejudicing their own interests, for it is certain that some united effort will have to be made before our wines can be expected to produce an impression upon consumers in the home market, or before we can obtain the name *par excellence*, of a wine-producing country. However, if the vine-growers respectively feel that they can sell their own produce advantageously, either in the colonies or abroad, it is not likely that they will look to a company to purchase their grapes. Large quantities of wine are now sold yearly to colonial consumers at five or six shillings a gallon, and as long as the owners of a few acres of vineyard can dispose of their produce in this way, they will probably do so. The Company seem to feel this. Having no vineyards of their own they depend for supplies of grapes upon the general growers, who are every year manufacturing more and more for themselves. The report of the Company, therefore, appeals to the grape-growers, and reminds them that success "depends in some degree on the encouragement" given by them. But it is not likely that growers will sacrifice profits for the sake of helping the Company. They will, no doubt be glad to sell their grapes if they can get more for them than by converting them into wine. But will the Company be able to give such a price? Will they, in fact, without vineyards be able to make wine as cheaply as persons having vineyards? This is the difficulty which any mere manufacturing company will have to contend with so long as the produce of our vineyards is not much in advance of colonial consumption, and is independent of distant markets.

In Victoria we find that a Vineyard Association is proposed to be formed for both growing grapes and making wine. Maldon is the locality chosen for the operations of this Company, whose capital is intended to be obtained by the issue of 2,000 shares at £5 each. A large profit is counted upon, we observe, by the sale of grapes simply, 4d. a pound being calculated upon in the prospectus as the price to be realised. The *Border Post*, however, goes beyond this. The writer of the article in that journal bases his estimate upon the grapes being sold at 1s. a pound. He says that such is the price at Albury, and that they have never been sold for less than 10d. a pound wholesale. According to this it would not pay to make wine at all; but the writer allows for a decrease in price being produced by regular supplies, though he still maintains that grapes need never be retailed so low as 6d. a pound, since colonial wine has been sold in London at £2 2s. a gallon! This, our readers will see, is about six or seven times the price that ought to be counted upon as the market value of our wines in England.

The Victorian Company are right, we think, in their proposal to grow vines as well as to manufacture wine. In this colony a good start has been obtained over our neighbours in the planting of vineyards; it is our own fault if we allow them to come up with us. The formation of of wine-making companies, however, whilst, in our opinion, necessary to the establishment of a foreign trade, may be regarded as premature by those who believe that our grape crops are not yet large enough to necessitate the manufacture of wine for export, and that the internal demand has yet to be greatly increased. At all events; a company resolved to obtain a name for its wines in the English market must be prepared for great exertion and some risk. A letter which we published some time ago from a firm at home spoke of our best wines being saleable at six or seven shillings a gallon. Probably, our best wines have not yet been tasted by that firm, or they would come to a conclusion that, for the present at least, a higher price was likely to be obtained for them in the English market.

With regard to the question of external markets for our wines, we are surprised that Mauritius has not been tried. The taste for light wines, such as we can well produce, is greater there amongst the French creole population than in England, where full-bodied port and sherry are most sought after. Mauritius, moreover, is near at hand, and could, therefore, be supplied by us at rates much lower than they have at present to pay for the wines of Europe. And we might also try India as a market. In Victoria it was suggested at a recent meeting of the Philosophical Society that colonial wines should be admitted free of duty, in order to encourage the consumption of so wholesome a drink.

SCIENTIFIC AND TECHNICAL TEACHING.

The following is extracted from Baron Von Liebig's "Letters on Modern Agriculture":—

The technical part of an industrial pursuit can be learned; principles alone can be taught. To learn the trade of husbandry, the agriculturist must serve an apprenticeship to it; to inform his mind in the principles of the science, he must frequent a school specially devoted to this object. It is impossible to combine the two; the only practicable way is to take them up successively. I formerly conducted, at Giessen, a school for practical chemistry, analysis, and other branches connected therewith, and thirty years' experience has taught me that nothing is to be gained by the combination of theoretical with practical instruction. A student of chemistry who attends the lecture-room and the laboratory concurrently positively defeats thereby the object of his stay at the school, and misses the aim of his studies. It is only after having gone through a complete course of theoretical instruction in the lecture-hall that the student can with advantage enter upon the practical part of chemistry; he must bring with him into the laboratory a thorough knowledge of the principles of the science, or he cannot possibly understand the practical operations. If he is ignorant of these principles, he has no business in the laboratory.

In all industrial pursuits connected with the natural sciences, in fact, in all pursuits not simply dependent on manual dexterity, the development of the intellectual faculties, by what may be termed "school learning," constitutes the basis and chief condition of progress and of every improvement. A young man with a mind well stored with solid scientific acquirements, will, without difficulty or effort, master the technical part of an industrial pursuit; whereas, in general, an individual who may be thoroughly master of the technical part is altogether incapable of seizing upon any new fact that has not previously presented itself to him, or of comprehending a scientific principle and its application.

I have often found that students coming from good colleges will speedily leave the pupils of industrial and polytechnic schools far behind them even in the natural sciences, though the latter, when compared with the former, were at first giants in knowledge.

APIARIAN SOCIETY.

The first meeting of this newly formed society was held on Wednesday evening, 25th ult., at the rooms of the Entomological Society, Bedford-row, the Rev. S. Waud in the chair. The report stated that an experimental apiary had been established, and placed under the care of the secretary, at Muswell-hill, to which the public were admitted by member's orders. Mr. Shirley Hibberd stated that numerous donations of books had been received for the library, and that it was the intention of the committee to institute lectures on improved methods of bee keeping, and also to offer prizes to cottagers for the best examples of bee management. Mr. Tegetmeier described an entirely novel method of bee keeping adopted in America, which the society were about to test at their apiary. Specimens of artificial comb, and various models, apparatus, &c., were exhibited.

SUPPLY OF COAL.

M. de Carnal, one of the greatest owners of coal mines in Prussia, in a statistical work on coal digging, states that the quantity of coal dug in 1857 amounted to 125,000,000 of tons, a mass which piled up 6 feet high, would cover a geographical square mile. The lands from which the coal is procured may be estimated at 8,000 square miles, and the mean depth of the beds of coal at about 31 feet. The mass of coal then known to exist would form a cube of 10 miles. If we compare this enormous bulk of coal with the quantity annually consumed, we may confidently affirm that there is enough to last for 36,000 years. The calculation of 31 feet for the mean depth of the beds is perhaps too low, for the coal fields of Liège extend 55 feet, those of Staffordshire to 151 feet, and those of Ruhr to 134 feet. The coal dug in 1857 amounted in value to £37,500,000 sterling, a sum far beyond that realized by the digging of the precious metals. In England some calculations have been made with regard to the yield of coal in our own country, according to which the coal fields of Great Britain yield 63,000,000 tons of coal per year. A better idea of the immense commerce of England could not be formed than by stating the fact that at Manchester and its environs a motive steam power equal to 1,200,000 horses is constantly maintained, to support which there are consumed 30,000 tons of coal per day, or 9,500,000 a-year. In the manufacture of salt alone about 3,000 tons are consumed per day, or 950,000 a-year. The Transatlantic steamers from Liverpool and other ports consume 70,000 tons per year, and the manufacture of gas absorbs 10,000,000 tons per year. The export of coal from England reached in 1858, 6,078,000 tons. It is estimated that England alone could furnish enough coal for the consumption of the whole of Europe for 4,000 years.

DISTRICT EXHIBITION OF INDUSTRIAL PRODUCTS AT ROUEN.

An Exhibition is about to be held at Rouen, under the auspices of the "Société libre d'émulation du Commerce et de l'Industrie de la Seine-Inférieure." The Exhibition opens on the 15th June, and remains open two months. The following are the Departments of France whose products will be included in the Exhibition:—

Nord, Pas de Calais, Aisne, Oise, Somme, Seine-Inférieure, Eure, Calvados, Orne, Manche, Mayenne, and Sarthe.

The Society, in its programme, particularly recommends, in order that the Exhibition may truly represent the actual condition of the industry of the district, that the articles exhibited should not be exceptional productions manufactured for the occasion.

Home Correspondence.

EXHIBITION OF 1861.

Sir,—It is with great regret that I hear of the non-ability of the committee selected on the project of Decennial Exhibitions to proceed with the undertaking. I think still an endeavour ought to be made; let those who are willing to exhibit have an opportunity. The high patronage that an Exhibition would receive must ensure the success of the undertaking as regards the monetary view of the matter.

It is not so much with foreigners that we have to compete as among ourselves. The public must be made able to discriminate artistic design and good workmanship from bad; not to be led away by the "puff" of advertisements, or gulled into paying an exorbitant price because a house, from position and long standing, enjoys a reputation.

A decennial Exhibition would but act as a mirror, wherein the promoters of industry would find themselves truthfully and honestly reflected. The good article at a fair price would there be presented solely upon its merits.

To my way of thinking, Sir, Exhibitions of Art *ought* to be represented, and never at a more lengthened period than ten years, for the mind naturally becomes contracted upon ideas of good taste, to be expanded only by frequent stimulants in the form of new designs and inventions.

It is not to the manufacturers, who are already in possession of notoriety, that your committee should address itself, but to those who are diligently seeking to obtain it; for it is certain that the former, *until they are absolutely forced*, will never (but in self-defence) lend their aid and capital towards promoting an Exhibition that might, more or less, injure themselves.

It is in creating a healthy free-trade rivalry among shop-keepers that the public will reap an advantage. The country will secure for itself pre-eminence for its style of manufacture, and the Society of Arts will receive that praise so justly due to them for always furthering the interests of commerce.—I am, &c.,

RICHARD A. GREEN.

ROYAL ACADEMY OF MUSIC.

Sir,—I observed that at a meeting of the Society of Arts, on the 11th inst., a paper was read on the "Recognition of Music as an Art," followed by a discussion, when certain remarks and accusations of no trifling character were brought forward against the Royal Academy of music, of which I have been Principal since the retirement of Dr. Crotch from that position in June, 1832. This discussion took place without any intimation being given to myself or any of those professors connected with the Academy, since the invitations were sent so late that it was impossible for them to attend the discussion.

I was astonished at the assertion that not one single Artist capable of doing England or the Academy of Music credit before the public, had issued from the Academy during the last twenty years. Now I beg to state that the numerous talented students who have appeared during that period renders this assertion most unjust and injurious to many talented individuals well known to the public.

It has been the misfortune of this academy, and not its fault, that it has not received such support from the Government of this country as is extended to similar institutions in other countries, which has enabled them to give greater extension to native artists.

106 pupils have been educated gratuitously, and 258 received on moderate terms; if the applications for a grant from Government had been attended to, many more persons of talent would have been educated gratuitously, or on very reduced terms.

I am, &c.,
CIPRIANI POTTER,
Principal of the Royal Academy of Music.
May 26th, 1859.

THE RELATIVE VALUES OF COAL AND COKE FOR LOCOMOTIVE ENGINES.

Sir,—In reading your report of the discussion on Mr. Fothergill's paper in the *Journal* of May 20, I went quite along with Professor Wilson, when he remarked that "he could not understand how coal containing 2 per cent. of ash could be converted into coke containing 7 per cent. of ash, when only 1½ parts of coal went to make one part of coke;" and I was, therefore, glad to observe in the *Journal* of May 27 a letter from Mr. Dugald Campbell, because I hoped to discover in it some explanation of so wonderful a result. I was much disappointed to find no attempt at an explanation of this, but merely a statement that the experiments had been carefully conducted and repeated, and an expression of an apparently confident opinion that neither the experiments nor the conclusions deduced from them were open to challenge. As the subject is one of great importance, Mr. Campbell allowing that "were it not for the increase of the ash there would not be so very much difference" in the heating powers of the coke and of the coal from which it was made, while according to his analyses, he makes the heating powers of the coke only 12·78 and that of the coal as high as 15·18, I think the analyses which bring out such results ought not to be allowed to pass without a searching investigation, and will therefore shortly state what occurs to me on the subject, in the hope that some useful light may be thrown upon it by the discussion which it may receive.

It will not be denied, I suppose, if ash be found in the coke it must have existed in some form or other in the coal from which it was made. Further, it is not disputed that in the case in question, 1½ parts of coal went to make one part of coke; that is to say, for every 150 parts of coal which went into the coke-oven 100 parts of coke came out. What, then, according to Mr. Campbell's calculations, would 150 parts of Ramsay's coking-coal have yielded upon analysis? The analysis in 150 parts is as follows:—

Carbon	128·355	Sulphur	2·190
Hydrogen ...	8·520	Moisture	1·110
Oxygen	4·605	Ash	3·000
Nitrogen... ...	2·220		

Mr. Campbell states the following to be a correct analysis of the 100 parts to be yielded by the 150 parts of coal.

Carbon	86·91	Sulphur	1·94
Hydrogen... ...	1·32	Moisture	1·28
Oxygen	0·10	Ash	7·65
Nitrogen	0·80		

He then goes on to say that this very much higher amount of ash is caused by an excess of iron and silica principally. I shall assume that all the ash contained in the 150 parts of coal is found in the 100 parts of coke. This would make the amount of ash in the coke 3 per cent., and I have simply to ask where the remaining 4·65 per cent., consisting "of iron and silica principally," came from. It seems to me perfectly plain that there must be a mistake somewhere, either in the analysis of the coal or in that of the coke, and that one or other of the two following conclusions is unavoidable,—either that Mr. Campbell, in his analysis of the coke, mistook for iron or silica or other ash what was in reality carbon, or, if 7 per cent. of iron and silica and other ash really existed in the coke, then that 7 parts, at the least, of iron and silica and other ash must have been in the 150 parts of the coal. In either case I am entitled, on Mr. Campbell's own showing, to claim for the coke nearly the same heating power, weight for weight, as the coal would give, instead of a heating power only in the proportion of 12·78 to 15·18. From a passage in Mr. Campbell's report, I am inclined to think that the error is in the analysis of the coal. He there says, "I can only account for this increase in these two substances (iron and silica in the ash of the coke) from their being volatilised in the coking ovens and entering into the crevices of the fuel from which the gases escape." From this I infer that the analysis of the coal not having been conducted in such close vessels as coke ovens, a large amount of the iron and silica had been volatilised and escaped without being observed. This seems to me sufficient to solve the difficulty; at all events I submit it to the readers of the *Journal* as a contribution towards its solution.

I have only further to ask whether it is quite fair to state the per centage of moisture in the coal at 0·74, while that in the coke is stated as high as 1·28?

I am, &c., I.

Edinburgh, May 28, 1859.

Proceedings of Institutions.

Glasgow Institution.—The first annual meeting of this Institution was held on Wednesday, May 25th, David Smith, Esq., J.P., in the chair. It is formed on the self-supporting principle, and the report showed that, whatever may be its future fate, it has made a fair beginning. The evening classes hitherto opened have been in the following subjects:—Mathematics, Geography, Drawing, Latin and Greek, French, Grammar, Composition, and Logic; Writing, Arithmetic, and Book-keeping; Phonography and Reporting; Gaelic; Music; and Elocution; Political Economy, and Mutual Instruction. The most of these classes were opened only at the beginning of the winter session, but taking the whole year, from June 2nd to May 10th, the aggregate number of separate individuals who entered them has been 370; average to each class, 42, for many attended more than one; day juvenile and advanced classes, 217, making a total of 587 individuals who have entered during the year. The number at present enrolled for the summer session is, evening classes, 144,; day classes, 127—total, 271, conducted by a staff of 132 teachers and assistants. The Institution having been placed in union with the Society of Arts, as many came forward for examination as could have been expected in the infancy of the Institution—namely, four. The income and expenditure have been £246 8s. 2d.; the latter being, for rents, taxes, advertising, and expenses, £77 3s. 2d., and the balance, teachers' salaries in proportion to their classes. The report also stated that earnest endeavours are making to form a library, which it is expected will be realised during the year. One peculiarity of this Institution in regard to stimulating students and scholars, is, that it does not recognise prizes given to the best, second-best, &c., as beneficial in general classes, but rather the reverse, as the managers entertain the opinion that it is commonly the simply clever youth who gains them, to the exclusion of the less gifted but more diligent student. Instead of that principle, a certain pretty accurate degree of proficiency is fixed in each branch studied, and every student or scholar who, on individual examination, is found to reach or surpass that point, is entitled to a certificate of the same, signed by the teacher. Tangible prizes could be attached to the certificates on this principle as well as on the other, but they have been regarded as not only unnecessary, but as tending to no real advantage to the student. Thirty-six of these certificates were handed to successful candidates by the chairman, and after a resolution that the Institution is well worthy of the patronage of the public, votes of thanks to the local board, the teachers of the Institution, and to the chairman, the meeting, which was well attended, separated.

Swan River (Western Australia) Mechanics' Institute.—The eight annual report of this Institute, for the year 1858, was recently presented to the annual meeting, at which the Governor of the Colony was present. The committee state that the success which has attended the operations of the Institute during the past year has been as marked as the most sanguine could have anticipated. The library now numbers 1,400 volumes. Among this large collection will be found many standard historical, scientific, and mechanical works, as well as others of a generally light and entertaining character. The number of books issued during the past year was 2,605, being about 1,000 more than were delivered during the preceding year. This great increase is in some measure to be attributed to the large number of honorary members who now avail themselves of the use of the library. Some five or six hundred volumes of new works have been ordered. To T. Helms, Esq., thanks are particularly due, for his gift of 42 volumes of the Waverley Novels. The number of members on the books of the Institute is 130. The discussion class, which is found to be one of the greatest incentives to reading and general improvement that has as yet been devised, has not been carried on quite so successfully during the past year. A music class has been established, under the leadership of Mr. S. T. Mitchell, and it is anticipated that ere long a good band will be formed in connection with the Institute. The establishment of a museum has, at all times, occupied the most earnest attention of the committee, and although up to the present time their exertions have not been crowned with success, for want of a suitable room in which to exhibit, they are still keeping this object in view, believing it would not only prove most beneficial to the Institute itself, but also to the colony in general. The lectures which were delivered during the past year were, on all occasions, numerously attended by a respectable and attentive audience. The financial position of the Institute is satisfactory. The receipts last year amounted to £137 13s., and the expenditure to £133 13s., leaving a balance to the credit of the Institute of £4 5s.; whilst independently of the £50 voted by the local government, which the committee are desirous should be annually devoted to the purchase of books and instruments, the amount of ordinary and honorary members' subscriptions has been found sufficient to cover the current expenses. The committee conclude their report by returning special thanks to their patron, the governor, and to the hon. the legislative council, for their kind and liberal support.

To Correspondents.

ERRATA.—In last number of the *Journal*, p. 481, col. 1, line 38, for "rough" read "angle;" line 3 from bottom, for "Badium," read "Budrum." col. 2, line 21, for "rollers," read "rules;" line 33, for "arrange," read "arouse."

MEETINGS FOR THE ENSUING WEEK.

MON. ......Royal Inst., 2. General Monthly Meeting.
Entomological, 8.
TUES. ......Royal Inst., 3. Professor John Morris, "On Geological Science."
Photographic, 8.
WED. ......Literary Fund, 3.
Meteorological, 7. Anniversary.
R. S. Literature, 8½.
Archœological Assoc., 8½.
THURS .....Royal Inst., 3. Mr. Austen H. Layard, "On the Seven Periods of Art."
Royal Soc. Club, 6.
Antiquaries, 8.
Philological, 8.
FRI. ......Astronomical, 8.
Royal Inst., 8½. Prof. Tyndall, "On the Transmission of Heat of different qualities through Gases of different kinds."
SAT..........Royal Inst. Mr. J. P. Lacaita, "On Modern Italian Literature."
Royal Botanic, 3¾.

PATENT LAW AMENDMENT ACT.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

[*From Gazette, May* 20*th*, 1859.]

Dated May 11*th*, 1859.

1181. J. Luis, 1B, Welbeck-street, Cavendish-square—An improved burling and napping machine. (A com.)
1183. M. Henry, 84, Fleet street—A mode of protecting the mariner's compass against local attraction. (A com.)
1185. W. Spence, 50, Chancery-lane—Imp. in knapsacks and other military equipments. (A com.)
1187. J. Leadbetter, Leeds, and J. Rhodes, Armley, near Leeds—Imp. in pumps.

[*From Gazette, May* 27*th*, 1859.]

Dated 31*st March*, 1859.

808. D. B. White, Newcastle-upon-Tyne—An improved indicating gauge lead or plummet.

Dated 23*rd April*, 1859.

1012. H. Keach and G. H. Farrington, Bush-lane, London—Improved advertising circulars.

Dated 12*th May*, 1859.

1189. D. Foxwell, Manchester—Imp. in sewing machines, and apparatus connected therewith.
1193. T. R. Oswold, Sunderland—Imp. in building ships and other vessels.

Dated 13*th May*, 1859.

1195. J. Woodley, Church-row, Limehouse—Imp. in sawing machines.
1197. W. Clark, 53, Chancery-lane—Certain imp. in knitting machines. (A com.)
1199. W. Whitehouse, New Ferry, near Birkenhead, Chester—Imp. in steam vessels.
1201. T. Vicars, sen., T. Vicars, jun., T. Ashmore, and J. Smith, Liverpool—Imp. in the manufacture of bread, biscuits, and like articles, and in the machinery and apparatus connected therewith.
1203. J. H. Johnson, 47, Lincoln's inn-fields—Imp. in machinery or apparatus for treating india rubber and other similar gums. (A com.)
1205. J. T. Beale, Greenwich, Kent, and T. N. Kirkham, Upper Halliford, Middlesex—Imp. in the preparation of colours for dyeing and printing.

Dated 14*th May*, 1859.

1207. J. M. Munro, Bristol—Imp. in the manufacture and arrangement of chain harrows.
1209. W. E. Gedge, 4, Wellington-street South, Strand—Imp. in dyeing. (A com.)
1211. T. Cooper and T. J. Evans, West Bromwich, Staffordshire—A new or improved oven or stove for baking, for drying japanned and lacquered goods, and for some other purposes as the same is or may be applicable to.
1213. J. Chatterton, 7, Devonshire-street, Islington—Imp. in covering wires and other metal conductors for telegraphic purposes.

Dated 16*th May*, 1859.

1215. E. Adams, Stanton Iron Works, Derby—The employment of machinery for drawing or extracating the gas flames or smoke from furnaces, and forcing the same into them, or into the cupola, to be used as blast or fuel for melting iron or mines of any description.
1217. J. Jones, Dorstone, Hereford—Imp. in musical instruments.
1219. G. Allcraft, Upper Thames-street—Imp. in pressure guages.
1221. W. E. Newton, 66, Chancery-lane—Imp. in manufacturing instruments for sharpening knives. (A com.)

INVENTIONS WITH COMPLETE SPECIFICATIONS FILED.

1249. G. R. Sampson, Massachusetts, U. S.—A new and useful improvement in propelling navigable vessels through water. (A com.)—May 20th, 1859.

WEEKLY LIST OF PATENTS SEALED.

[*From Gazette, May* 27*th*, 1859.]

May 27*th.*

2696. J. Ramsbottom.
2704. S. Diggle.
2706. L. A. Possoz.
2707. G. Oates.
2710. G. Collier and W. Noble.
2712. G. Hadfield.
2713. W. Parsons.
2714. C. Hancock.
2716. W. A. Henry.
2729. J. Thow and T. M. Hall.
2733. J. Colyer.
2734. J. Coulson.
2740. R. Laming.
2770. H. Bevan.
2788. J. G. Arnold.
2795. F. W. Fletcher.
2831. B. Lauth.
2863. G. W. Baker.
2892. J. J. Aston.
2925. W. Spence.
3007. J. H. Johnson.
80. C. M. Kernot.
155. R. Bradley and W. Craven.
209. W. C. Homersham.
222. H. Owen.
809. S. S. Bateson.
819. W. E. Newton.
821. W. Tod.
849. G. Haseltine.

[*From Gazette, May* 31*st*, 1859.]

May 30, 1859.

2739. T. P. Pursglove.
2742. J. Samuel.
2743. E. Viney.
2744. H. Adcock.
2745. F. Warner, J. Derbyshire, and A. Mann.
2748. S. Newington.
2760. G. Spiller.
2772. R. Legg.
2777. T. Sibley.
2806. W. Burne s.
2818. H. Meidinger.
2828. J. Wilson.
2833. J. Lightfoot.
2838. W. Beardmore.
2840. G. W. B. Kiallmark, and W. T. Timewell.
2842. J. B. Guthrie.
2860. E. Bow.
2873. J. Bullough.
2875. W. Clark.
2891. W. Clark.
2899. J. Aitken and J. Brooks.
2901. A. Mitchel.
2916. A. S. Beliard.
544. J. Pile.
588. J. Kershaw.

PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

[*From Gazette, May* 27*th*, 1859.]

May 23*rd.*

1244. W. Illingworth.
1252. A. R. M. Normandy.

May 24*th.*

1275. G. Bell and G. Grimes.
1288. W. Needham and J. Kite.

May 25*th.*

1263. J. Baird.

From Gazette, May 31*st.*

May 27, 1859.

1310. E. Marsden.
1313. T. W. Willett.

May 28, 1859.

1283. F. L. Scott, T. Belward, and J. Findlow.
1292. H. Bessemer.